

Amendments to the Claims

This listing of claims will replace the original version of claims in the application.

Listing of Claims

Claim 1 (currently amended). An improvement for ~~the~~ a self-balancing shielded bipolar ionizer ~~described in U. S. Patent 6,002,573~~, which ~~currently~~ includes the following

known elements:

- a housing constructed of insulative material;
- a recessed cavity (4)[[.]]; and
- electrodes (7) placed within the recessed cavity (4)[[.]]; and
- a self-balanced high voltage power supply;

whereas the improvement comprises:

- ~~a flow of air or nitrogen around each electrode (7)~~
- an air insert assembly, used to direct a flow of air or nitrogen around each
- electrode, which wherein the air insert assembly
 - fits into the recessed cavity (4),
 - is constructed of insulative material,
 - ~~with~~ has multiple concave external surfaces (10) to surround each
 - electrode,
 - ~~with~~ has paths that distribute pressurized air or nitrogen to the electrodes
 - (7), and

~~with~~ has air holes (8) through which the electrodes protrude;
an air inlet fitting (3) to supply pressurized air or nitrogen[[,]]; and
electrode holders (13) that are compatible with both the air insert assembly and
with high voltage connectors (5).

Claim 2 (original). The ionizer in claim 1 where the air insert assembly (2) comprises an
air insert base (11) and an air insert cross (12).

Claim 3 (original). The ionizer in claim 2 where the air insert cross (12) includes an
integral port (16) that receives the pressurized air or nitrogen from air inlet fitting (3),
ducts the pressurized air through a vertical bore or chamber (18) to the air delivery grooves
or channels (19), and past the electrodes (7).

Claim 4 (original). The ionizer in claim 1 where a first alternative air insert assembly is
used, which comprises a solid curved surface (23) and a flat bottom cross (24).

Claim 5 (original). The ionizer in claim 1 where another alternative air insert assembly
(26) is used, which is a one-piece construction.

Claim 6 (original). The ionizer in claim 2, 3, 4 or 5 where the air inlet fitting (3) and air
insert assembly or insert cross form one part that receive air or nitrogen.

Claim 7 (original). The ionizer in claims 1 or 5, where the air assist assembly is hermetically sealed into the recessed cavity (4) to minimize air leakage between the air assist assembly and the walls of the recessed cavity (4).

Claim 8 (original). The ionizer in claims 1 or 5, where the floor of the recessed cavity (4) forms one boundary of the air delivery grooves (19).

Claim 9 (original). The ionizer in claims 1,2,3, or 4 where the air insert assembly, the electrodes (7), and the electrode holders (13) constitute a removable subassembly.

Claim 10 (original). The ionizer in claim 6 where the air insert assembly, the electrodes (7), and the electrode holders (13) constitute a removable subassembly.

Claim 11 (original). The ionizer in claims 1,2,3,4, or 5 where each electrode tip (14) is situated in the focal point of its surrounding curved surface.

Claim 12 (original). The ionizer in claim 6 where each electrode tip (14) is situated in the focal point of its surrounding curved surface.

Claim 13 (original). The ionizer in claims 1,2,3,4, or 5 where the number of concave surfaces contained by the air assist assembly is equal to the number of electrodes (7).

Claim 14 (original). The ionizer in claim 6 where the number of concave surfaces contained by the air assist assembly is equal to the number of electrodes (7).

Claim 15 (original). The ionizer in claims 1,2,3,4, or 5 where the path to distribute pressurized air includes a vertical bore or chamber (18) as part of an air assist assembly.

Claim 16 (original). The ionizer in claim 6 where the path to distribute pressurized air includes a vertical bore or chamber (18) as part of an air assist assembly.

Claim 17 (original). The ionizer in claims 1,2,3,4, or 5 where the path to distribute pressurized air includes air delivery grooves or channels (19) of equal length connected to the vertical bore or chamber (18) through openings.

Claim 18 (original). The ionizer in claim 17 where opening areas are not equal to each other.

Claim 19 (original). The ionizer in claim 6 where the path to distribute pressurized air includes air delivery grooves or channels (19) of equal length connected to the vertical bore or chamber (18) through openings.

Claim 20 (original). The ionizer in claim 19 where opening areas are not equal to each other.

Claim 21 (original). The ionizer in claims 1,2,3,4, or 5 where air inlet fitting (3) penetrates the wall of the recessed cavity (4).

Claim 22 (original). The ionizer in claim 6 where air inlet fitting (3) penetrates the wall of the recessed cavity (4).

Claim 23 (original). The ionizer in claims 1,2,3,4, or 5 where ring gaps (20) are used to direct the pressurized air or nitrogen past the electrodes (7).

Claim 24 (original). The ionizer in claim 6 where ring gaps (20) are used to direct the pressurized air or nitrogen past the electrodes (7).

Claim 25 (original). The ionizer in claims 1,2,3,4, or 5 where pinholes (21) are used to direct the pressurized air or nitrogen past the electrodes (7).

Claim 26 (original). The ionizer in claim 6 where pinholes (21) are used to direct the pressurized air or nitrogen past the electrodes (7).

Claim 27 (original). The ionizer in claims 1,2,3,4, or 5 where toothed ring gaps (22) are used to direct the pressurized air or nitrogen past the electrodes (7).

Claim 28 (original). The ionizer in claim 6 where toothed ring gaps (22) are used to direct the pressurized air or nitrogen past the electrodes (7).

Claim 29 (original). The ionizer in claims 1,2,3, or 4 where electrodes (7) have sharp pointed tips (14), protruding through the exterior side of air insert assembly, and electrode holders (13) protrude through bottom portion of the air insert assembly into high voltage connectors (5) situated beneath the bottom of the recessed cavity (4).

Claim 30 (original). The ionizer in claim 6 where electrodes (7) have sharp pointed tips (14), protruding through the exterior side of air insert assembly, and electrode holders (13) protrude through bottom portion of the air insert assembly into high voltage connectors (5) situated beneath the bottom of the recessed cavity (4).